RHP International - www.Rock2000.com
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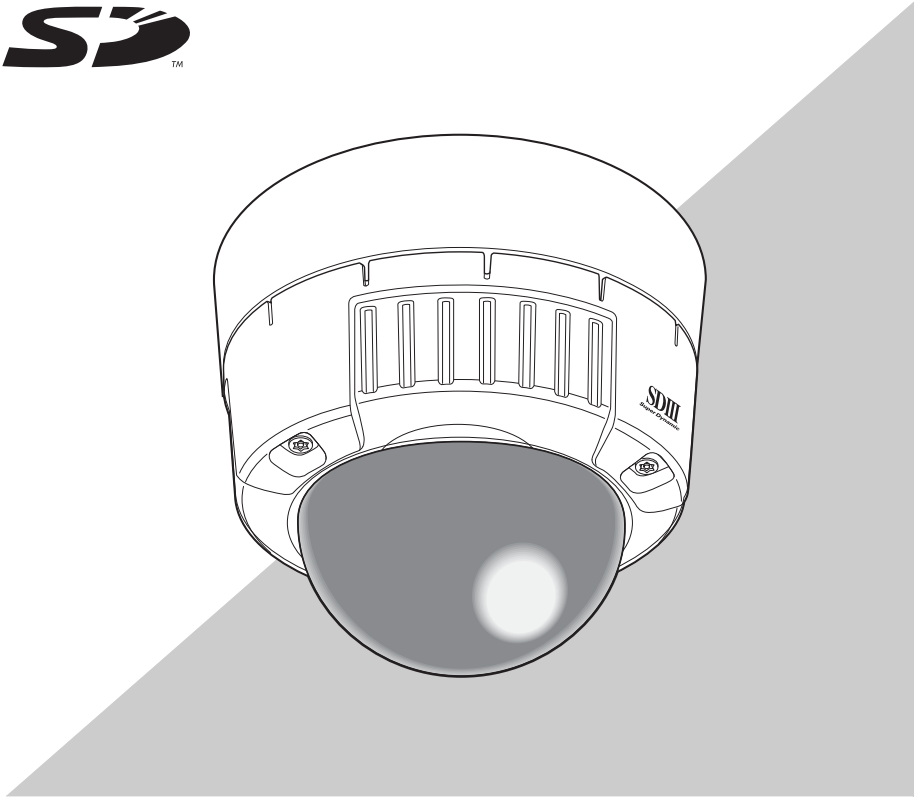
Panasonic

Network Camera

# Operating Instructions

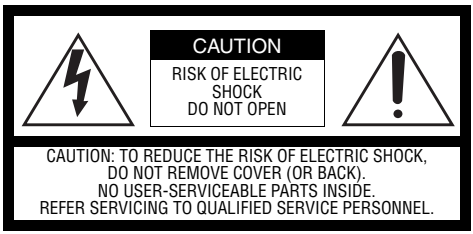
Model No. WV-NW484S



Before attempting to connect or operate this product,
please read these instructions carefully and save this manual for future use.

**WARNING:**

- This apparatus must be earthed.
- All work related to the installation of this product should be made by qualified service personnel or system installers.
- The connections should comply with local electrical code.


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

**SA 1965**

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

**SA 1966**

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

For Canada

This Class A digital apparatus complies with Canadian ICES-003.

For U.S.A

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules.
These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.
Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. FCC Caution: To assure continued compliance, (example - use only shielded interface cables when connecting to computer or peripheral devices). Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

The serial number of this product may be found on the surface of the unit.
You should note the serial number of this unit in the space provided and retain this book as a permanent record of your purchase to aid identification in the event of theft.

Model No. _____
Serial No. _____

# Important Safety Instructions

1) Read these instructions.
2) Keep these instructions.
3) Heed all warnings.
4) Follow all instructions.
5) Clean only with dry cloth.
6) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
7) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
8) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
9) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
10) Only use attachments/accessories specified by the manufacturer.
11) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus.
When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

12) Unplug this apparatus during lightning storms or when unused for long periods of time.

## Limitation of Liability

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THIS PUBLICATION COULD INCLUDE TECHNICAL INACCURACIES OR TYPOGRAPHICAL ERRORS. CHANGES ARE ADDED TO THE INFORMATION HEREIN, AT ANY TIME, FOR THE IMPROVEMENTS OF THIS PUBLICATION AND/OR THE CORRESPONDING PRODUCT (S).

## Disclaimer of Warranty

IN NO EVENT SHALL MATSUSHITA ELECTRIC INDUSTRIAL CO,.LTD. BE LIABLE TO ANY PARTY OR ANY PERSON, EXCEPT FOR REPLACEMENT OR REASONABLE MAINTENANCE OF THE PRODUCT, FOR THE CASES, INCLUDING BUT NOT LIMITED TO BELOW:

(1) ANY DAMAGE AND LOSS, INCLUDING WITHOUT LIMITATION, DIRECT OR INDIRECT, SPECIAL, CONSEQUENTIAL OR EXEMPLARY, ARISING OUT OF OR RELATING TO THE PRODUCT;

(2) PERSONAL INJURY OR ANY DAMAGE CAUSED BY INAPPROPRIATE USE OR NEGLIGENT OPERATION OF THE USER;

(3) UNAUTHORIZED DISASSEMBLE, REPAIR OR MODIFICATION OF THE PRODUCT BY THE USER;

(4) INCONVENIENCE OR ANY LOSS ARISING WHEN IMAGES ARE NOT DISPLAYED, DUE TO ANY REASON OR CAUSE INCLUDING ANY FAILURE OR PROBLEM OF THE PRODUCT;

(5) ANY PROBLEM, CONSEQUENTIAL INCONVENIENCE, OR LOSS OR DAMAGE, ARISING OUT OF THE SYSTEM COMBINED BY THE DEVICES OF THIRD PARTY;

(6) ANY CLAIM OR ACTION FOR DAMAGES, BROUGHT BY ANY PERSON OR ORGANIZATION BEING A PHOTOGENIC SUBJECT, DUE TO VIOLATION OF PRIVACY WITH THE RESULT OF THAT SURVEILLANCE-CAMERA'S PICTURE, INCLUDING SAVED DATA, FOR SOME REASON, BECOMES PUBLIC OR IS USED FOR THE PURPOSE OTHER THAN SURVEILLANCE;

(7) LOSS OF REGISTERED DATA CAUSED BY ANY FAILURE.

# Preface

## Features

This video surveillance camera is equipped with a 10BASE-T/100BASE-TX terminal (network terminal) for connection to a network.
This network terminal is used to establish a connection between the camera and a LAN (Local Area Network) or other network (e.g. Internet) so that images from the camera can be checked on a personal computer (from here on, "PC") on the network.

***Note*** .....

- To check images from the camera on a PC, the PC's network environment must first be set up. A web browser must also be installed on the PC.

.....

**Super Dynamic Ⅲ (SUPER-D Ⅲ)**
**Auto Back Focus function**
**VMD (Video Motion Detector) function for detecting motion of an intruder, etc. in the monitoring area and sounding an alarm by an alarm signal**
**Progressive output (motion adaptive interlace/progressive conversion function)**
**Dual Encode Function for simultaneous transmission of JPEG and MPEG-4**
**Power over Ethernet (IEEE802.3af-compliant, from here on, "PoE") function**
**SD memory card slot**

## About these operating instructions

The Instruction Manual for this camera is comprised of three parts: this book, and the Operating Manual (PDF) and Setup Manual (PDF).
This book explains how to install the camera, and how to connect and set up the network. For details on how to operate and set up the camera, refer to the " Operating Manual/Setup Manual" in the CD-ROM (provided). To read the PDF manual, Adobe Systems Incorporated's Adobe® Reader® is required.

## System requirements for a PC

| | |
|---|---|
| CPU | Pentium®4 2.4 GHz or faster |
| Memory | 512 MB or more |
| Network | 10BASE-T/100BASE-TX port x 1 |
| Image display | Resolution: 1024 x 768 pixels or more |
| | Color scheme: True Color 24 bits or more |
| Supported OS | Microsoft® Windows® 2000 Professional SP4* |
| | Microsoft® Windows® XP Home Edition SP2 |
| | Microsoft® Windows® XP Professional SP2 |
| Web Browser | Microsoft® Internet Explorer® 6.0 SP2 |
| | Microsoft® Internet Explorer® 7.0 |
| | * When supported OS is Microsoft® Windows® 2000 Professional SP4, Microsoft® Internet Explorer® 6.0 SP1 |
| Other | CD-ROM drive (for using Operating Instructions and software) |
| | DirectX® 9.0c or later |
| | Adobe® Reader® (for reading Operating Instructions in CD-ROM) |

***Note***

- When the PC is used in an environment other than that recommended, the image refresh rate may slow down, operations in the web browser may no longer be possible, or other problems may occur.

## Trademarks and Registered Trademarks

- Microsoft, Windows, ActiveX and DirectX are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.
- Intel and Pentium are either registered trademarks or trademarks of Intel Corporation in the United States and/or other countries.
- Adobe and Reader are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States and/or other countries.
- The SD logo is a trademark.
- Other names of companies and products contained in these operating instructions may be trademarks or registered trademarks of their respective owners.

## Network Security

As you will use this product connected to a network, your attention is called to the following security risks.

(1) Leakage or theft of information through this product
(2) Use of this product for illegal operations by persons with malicious intent
(3) Interference with or stoppage of this product by persons with malicious intent

It is your responsibility to take precautions such as those described below to protect yourself against the above network security risks.

- Use this product in a network secured by a firewall, etc.
- If this product is connected to a network that includes PCs, make sure that the system is not infected by computer viruses or other malicious entities (using a regularly updated anti-virus program, anti-spyware program, etc.).
- Protect your network against unauthorized access by restricting users to those who log in with an authorized user name and password.
- Apply measures such as user authentication to protect your network against leakage or theft of information, including image data, authentication information (user names and passwords), alarm mail information, FTP server information and DDNS server information.
- Do not install the camera in locations where the camera or the cables can be destroyed or damaged by persons with malicious intent.

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# Precaution

**The camera does not have a power switch.**
In order to the power off, turn the power breaker off.

**Note the following to ensure long-term trouble-free operation.**
Long operation under high temperatures and high humidity can cause components to deteriorate and shorten camera life. (Less than +35°C (95°F) is recommended) Make sure that the camera is installed in a location where it is not directly exposed to heat from a radiator, heater, etc.

**Do not touch the dome cover with your bare hands.**
A dirty dome cover causes deterioration of picture quality.

**Handle the camera carefully.**
Do not drop the camera, or subject it to strong impact or vibration.
Doing so may cause a malfunction.

**About the PC to be used**
Displaying the same image on CRT type PC monitors for a long time may damage the monitor. We recommend using a screen saver.

**Cleaning the camera**
Before cleaning the camera, turn the power off. Not doing so may cause injury.
Do not wipe or use volatile solutions such as benzene or paint thinner on the camera. Doing so may discolor the case. When using a chemically-treated cloth, read and follow the precautions for the cloth.
**In the case of stubborn dirt**
Wipe with a soft cloth moistened in a weak solution of water and neutral kitchen detergent. Wring all excess moisture from the cloth before wiping. Next, wipe off all remaining solution with a soft, dry cloth.

**Product Information**
Check the product ID, power requirements, and other information marked on the rear and bottom of the product.

**Refresh Interval**
The refresh interval may be longer depending on the network environment, PC performance, photographic subject, access traffic, etc.

**Cleaning the lens**
Use lens cleaning paper (like the type available for cleaning eyeglasses or a camera lens) to clean the lens. Alcohol-based solvents may be used for cleaning the lens. Do not use glass cleaners or paint thinners.

**MPEG-4 Visual patent portfolio license**

This product is licensed under the MPEG-4 Visual patent portfolio license for the personal and non-commercial use of a consumer for (i) encoding video in compliance with the MPEG-4 Visual Standard ("MPEG-4 Video") and/or (ii) decoding MPEG-4 Video that was encoded by a consumer engaged in a personal and non-commercial activity and/or was obtained from a video provider licensed by MPEG LA to provide MPEG-4 Video. No license is granted or shall be implied for any other use. Additional information including that relating to promotional, internal and commercial uses and licensing may be obtained from MPEG LA, LLC. See http://www.mpegla.com.

**SD Memory Card**

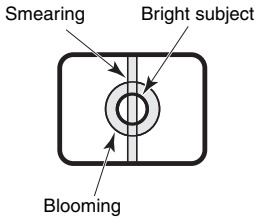
- Before inserting an SD memory card, turn the camera off. If the SD memory card is inserted while the camera is still turned on, the SD memory card may not function properly, or the data recorded on the SD memory card may be damaged.
  For details on how to insert and remove SD memory cards, see page 32.
- Format unformatted SD memory cards on this system before use. When an SD memory card is formatted, all content recorded on the card will be erased. If an unformatted SD memory card or an SD memory card formatted on a different system is used on this camera, the SD memory card may not function properly, or the camera's performance may be reduced.
- For details on how to format SD memory cards, refer to the "Setup Manual."
- We recommend using SD memory cards whose operation has already been confirmed (→ page 16). When an SD memory card other than one recommended by Panasonic is used, the SD memory card may not function properly, or the camera's performance may be reduced.

**CCD Color Filter Burn-in**

Intense light concentrated on one spot for a long period can cause deterioration of the CCD internal color filters, and discoloration of the affected part. Even if the position of a fixed camera is changed, the discoloration at the previous location of the concentrated light will remain on the screen.

**Do not point the camera at a strong light source.**

- Intense light such as that produced by a spotlight concentrated on one part of the screen can cause blooming (rainbow around the strong light) or smearing (vertical stripes above and below the strong light).



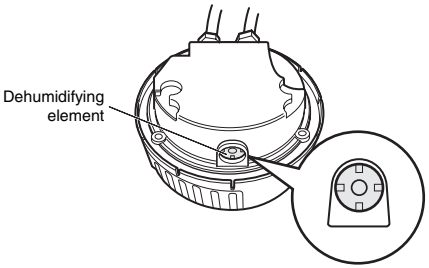

**Consumables**

The item listed below is a consumable. Replace it using the service life values as guides. Note that actual service life is affected by the operating environment and conditions.

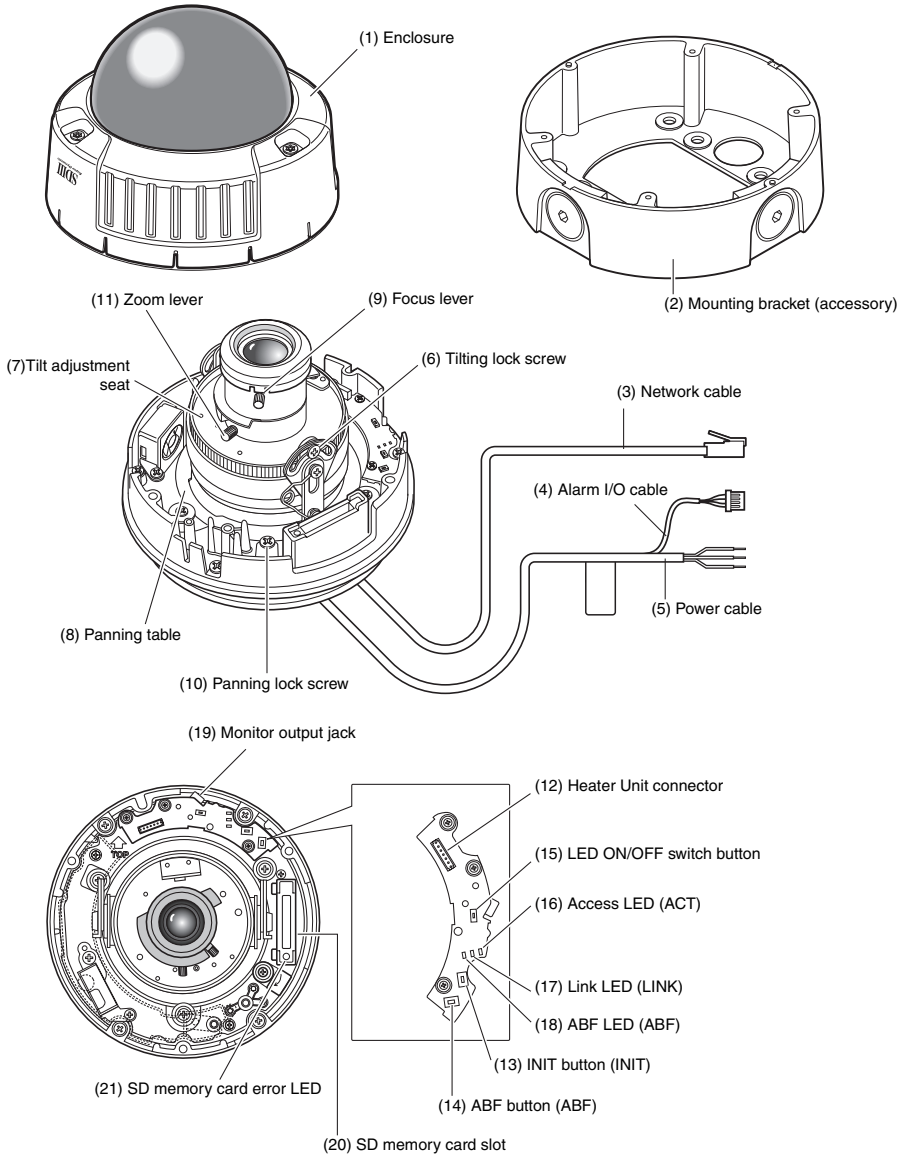
Cooling fan: Approx. 30,000 hours

**Dehumidifying Element**

- This camera has a built-in dehumidifying element to maintain a low-humidity state inside the camera. This prevents condensation from forming.
- Condensation forms due to temperature, humidity, weather and other conditions, and may take time to clear up.
- Do not block the surface of the dehumidifying element.



# Names of Components



**(1) Enclosure**
**(2) Mounting bracket (accessory)**
**(3) Network cable**
**(4) Alarm I/O cable**
**(5) Power cable**
**(6) Tilting lock screw**
Fixes the tilt position after adjusting.
**(7) Tilt adjustment seat**
Adjusts the screen tilt.
**(8) Panning table**
Adjusts the horizontal angle of the camera.
**(9) Focus lever**
Fixes the focus position.
**(10) Panning lock screw**
Fixes the panning position after adjusting.
**(11) Zoom lever**
Fixes the zoom position after adjusting.
**(12) Heater output connector**
Used for connecting the heater unit (sold separately) cable.
**(13) INIT button (INIT)**
Used for initializing setup.
**(14) ABF button (ABF)**
Used for starting ABF.
**(15) LED ON/OFF switch button**
Used for turning the link LED and access LED on and off.

***Note***

- The link LED and the access LED light if the LED ON/OFF button is ON and the LED display setting (→ Setup Manual) on the computer is set to "ON". The LEDs do not light if the LED ON/OFF button is OFF or the computer's LED display settings is set to "OFF".

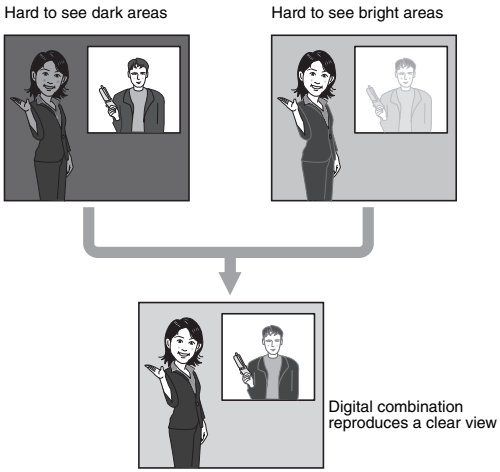
**Important**

- In regular operation, set this switch to off. Lighting of the LEDs may reflect on the dome and be included in the image on screen.

**(16) Access LED (ACT)**
This LED indicates the reception status.
**(17) Link LED (LINK)**
This LED indicates the network link status.
**(18) ABF LED (ABF)**
This LED indicates the busy status of the ABF.
**(19) Monitor output jack**
Used for connecting the monitor for confirming images at camera installation.
**(20) SD memory card slot**
**(21) SD memory card error LED**
This LED indicates the SD memory card error status.

## Super Dynamic Ⅲ (SUPER-D Ⅲ)

When there is wide variation between the illumination of light and dark areas of the location being monitored, the camera adjusts the lens iris in accordance with the bright areas. This causes loss of detail in dark areas. Conversely, adjusting lens brightness for the dark areas causes brighter areas to become washed out.
SUPER-D Ⅲ digitally combines an image that is set up for a clear view of bright areas with an image that is set up for a clear view of dark areas, creating a final image that preserves overall detail.




## Motion Detector

This function outputs an alarm signal when motion is detected in the monitoring area, such as the camera being covered with a cloth or its cover, or the camera's orientation being changed, during monitoring.

***Note*** .....

- The motion detector function is not exclusively for preventing theft, fire, etc. The manufacturer assumes no responsibility for any accidents that occur or any losses incurred while this product is being used.

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## Progressive output

Jagged edges that are unique to interlaced cameras and that occur in areas with movement are corrected by the motion adaptive interlace/progressive conversion function and converted to progressive images. This allows both still and moving objects to be captured as well-defined images.

## Privacy Zone Setting

The privacy zone function allows you to mask specific areas, such as housing, of a monitored scene from view.

## Auto Back Focus Function

Back focus can be automatically adjusted by operating the buttons on the camera, which makes installation easier. Back focus can also be adjusted on the PC after the camera is installed.
When switching between color and black and white images, the back focus is automatically adjusted and focus deviation is corrected.

## Recording to an SD Memory Card

Camera images can be saved to an SD memory card when an alarm occurs.
Images can also be backed up when a network failure occurs.

***Note***

- This operation has already been confirmed on the following SD memory cards:
  Panasonic SD memory cards (64 MB, 128 MB, 256 MB, 512 MB, 1 GB, 2 GB)
  SDHC memory card is not supported.

## Special Power Supply and Cable Installation Not Required (Power over Ethernet)

Power can be supplied to the camera and images transmitted on a single LAN cable by connecting to PoE-compatible network devices. Special installation of a power supply for the camera and video cables is not required.

## Dual Encoding for Higher Efficiency Operation in Network Environments

MPEG-4 and JPEG can be output at the same time.
MPEG-4 operation when monitoring in real time or from a remote site, and JPEG operation when recording and verifying images at high quality can both be achieved at the same time in a network environment.

# Installation and Connections

## Installation Precautions

The following describes how to install the camera.
Before you install and connect the camera, check and prepare the required peripheral devices and cables.
Before you connect the camera, turn off all devices to be connected, such as this camera and PC.

**Camera Installation Location**
Discuss the installation location for the camera with your retailer, and select a place that is strong enough for the installation.

- Install the camera on a ceiling (concrete, etc.) at a location that is sufficiently strong to support it.
- Install the camera body on the foundation section of the building or sections having sufficient bearing strength.

**This camera is for installation under eaves.**

- Do not install it in areas exposed to direct sunlight or rain.

**Never install or use the camera in the following locations.**

- Near a swimming pool or other areas where chemicals are used.
- Food preparation areas and other locations where there are large amounts of steam vapor and oil, in flammable atmospheres, other special environments.
- Areas where radiation, X-rays, strong electric waves, or magnetism is generated.
- At sea, in coastal areas, or in areas where corrosive gas is being generated.
- Areas outside of the allowable ambient operating temperature range (→ page 47).
- On a motor vehicle, a boat, or other areas subject to strong vibration. (This camera is not designed for use on a vehicle.)
- When installing the camera on a ceiling of insufficient strength, reinforce the ceiling.

**When not in use, always remove the unit.**

**About White Balance**
White balance may not be correctly obtained in the following instances:

- When capturing subjects having extremely little white or subjects close to a single color.
- When capturing images outdoors at dawn or dusk or in low illumination.
- When capturing images having extremely different color temperatures (e.g. in color lighting).

**About Static Electricity Removal**
Before installing the camera, touch a metal case or other metallic parts with your hand to remove static electricity from your body.

**Do not install in areas subjected to high amounts of humidity or dust.**
Doing so may cause internal components to damage more easily or malfunction.

**Do not wire cables near power lines.**

**Configure the power supply to the camera so that it can be turned on and off.**
The camera does not have a power switch, so configure the power supply to the camera so that it can be turned on and off.

**Network Connection**
Pay attention to the following points when using the camera's network cable to connect to a network.

- Wire and install the camera so that the network will not be influenced by lightning surges, etc.
- Pan and tilt cannot be used in combination with this camera.

**Tightening the Screws**
Screws should be tightened sufficiently in accordance with the materials and structure of the installation location. After tightening the screws, visually inspect them to make sure there is no unevenness and that each screw is tight.

**Screws should be ordered separately.**
The camera does not come with screws. Choose screws in accordance with the materials and structure of the installation location.

**Electrical Wave Interference**
The image may fluctuate near TV or radio transmission antennas, or near strong electric or magnetic fields (e.g. motors or transformers). In this case, setup a specialized thin conduit and pass the cable through it.

**Power Supply by PoE**
Use a PoE-compatible (IEEE802.3af-compliant) hub or power supply unit.

# Before Starting Installation

The following procedures are for installing the camera on walls and ceilings.

**Important**

- The type of screws for the installation depend on the material at the location in which you will install the bracket (included). However, do not use wood screws or nails.
  Metal material: Use M6 or M5 bolts and nuts for mounting.
  Concrete wall: Use M6 or M5 anchor bolts for mounting.
  (Recommended tightening torque M4 : 0.8 N·m {8 kgf·cm}
  M5 : 1.5 N·m {15 kgf·cm}
  M6 : 2.5 N·m {25 kgf·cm})
- Be sure that the arrow on the installation bracket is pointing upwards.
- A pull-out force in excess of 294 N {30 kgf} is required for each screw used in the installation.
- Use sufficient reinforcement for installations on ceilings that are made of gypsum board and are weak.

**Fixing the bracket (accessory)**

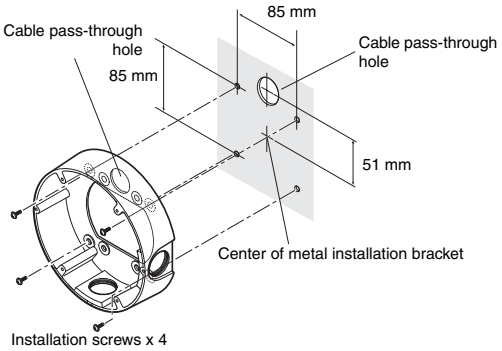
- Use the bracket to install the camera on a wall or ceiling that is provided with a hole for passing the cable through or on exposed piping.
- Screws for fixing the bracket to a wall or ceiling are not provided. Choose screws in accordance with the materials and structure of the installation location.
- Screws for fixing the camera to the bracket are provided with the camera.

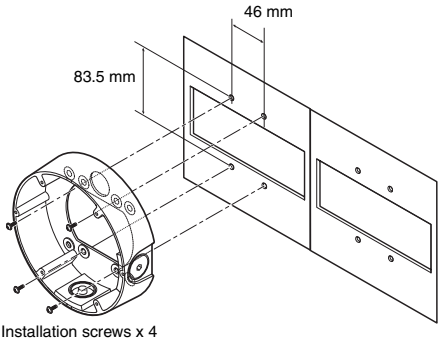
# Installing the Camera

**1** Install the mounting bracket.
Fix the mounting bracket directly into the ceiling or wall or into the imbedded box using the four screws prepared in advance. (Note that screws for installation are not provided.)
When using the imbedded box, we recommend using two boxes in a row as shown in the figure below on the right. (This is to make it easier to pass the cables through.)

***Note***

- When installing the camera outdoors, waterproof the screws and screw holes.

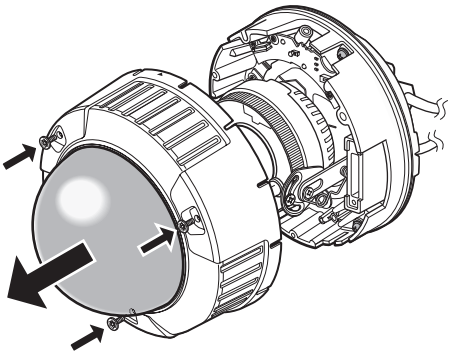


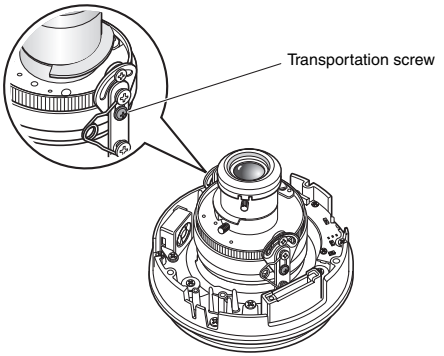

**2** Loosen the three screws and remove the enclosure.
Unscrew the screws using the driver bit (provided).

***Note***

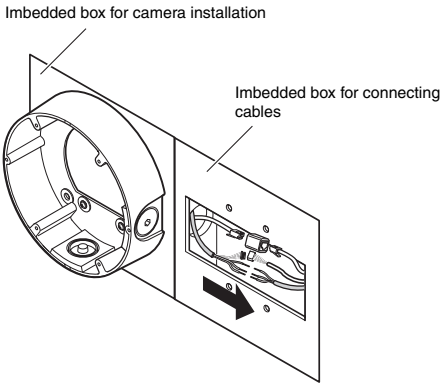
- When replacing the dome cover (WV-CW4C, sold separately), refer to the Operating Instructions provided with the dome cover.



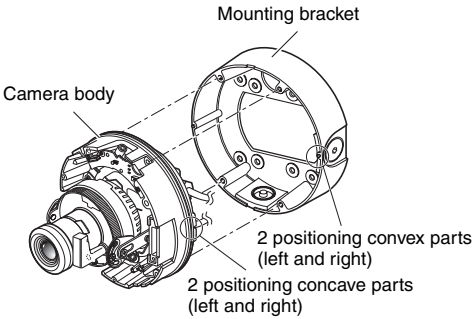
**3** Unscrew the transportation screw.

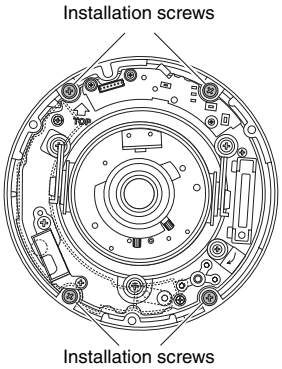



**4** Connect the power cable and the video output cable.
See "Waterproofing Cable Joints" on page 26.



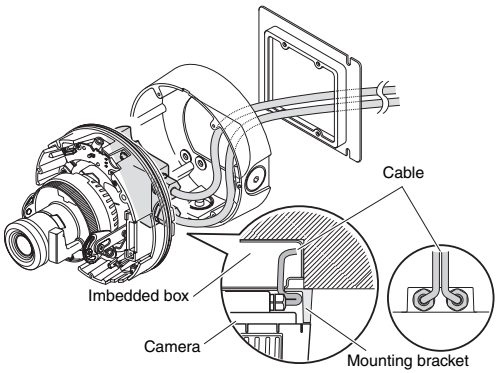
**5** Install the camera on the mounting bracket.
Fix the camera onto the mounting bracket using the four screws (provided).
During installation, align the protruding part on the mounting bracket and the indented part on the camera to fix the position of the camera.
Make sure to tighten the screws used for mounting the camera.
(M4:0.78 N·m) {8kgf·cm}
You can keep the camera waterproof by firmly tightening the installation screws.




***Note*** .....

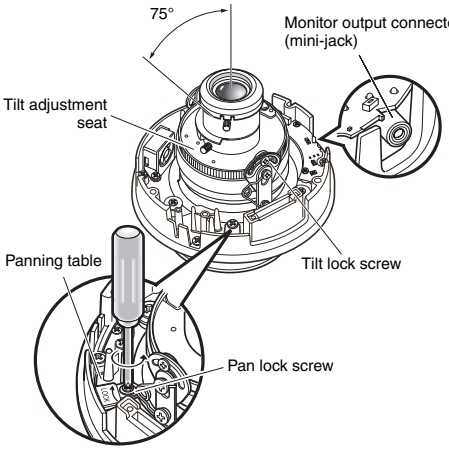
- When using the embedded box, run the cable as shown on the right.

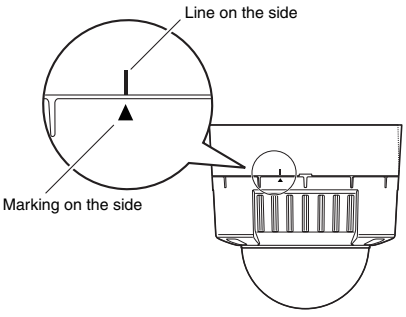



.....

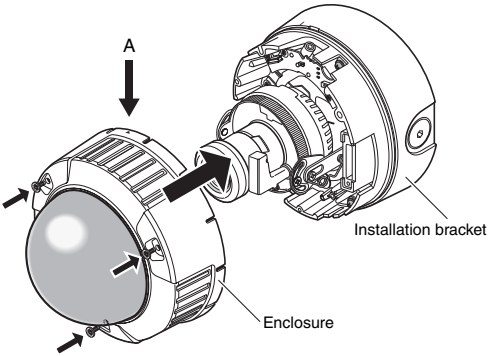
***6*** Adjust the camera angle while monitoring the image on the adjustment monitor.
See "Adjusting the Camera" on page 28.

***7*** Install the enclosure.
Tighten the screws unscrewed at step 3 using the driver bit (provided).
Align the ▲ mark on the side of the enclosure with the line on the side of the bracket. (recommended torque: 0.78 N·m {8 kgf·cm})



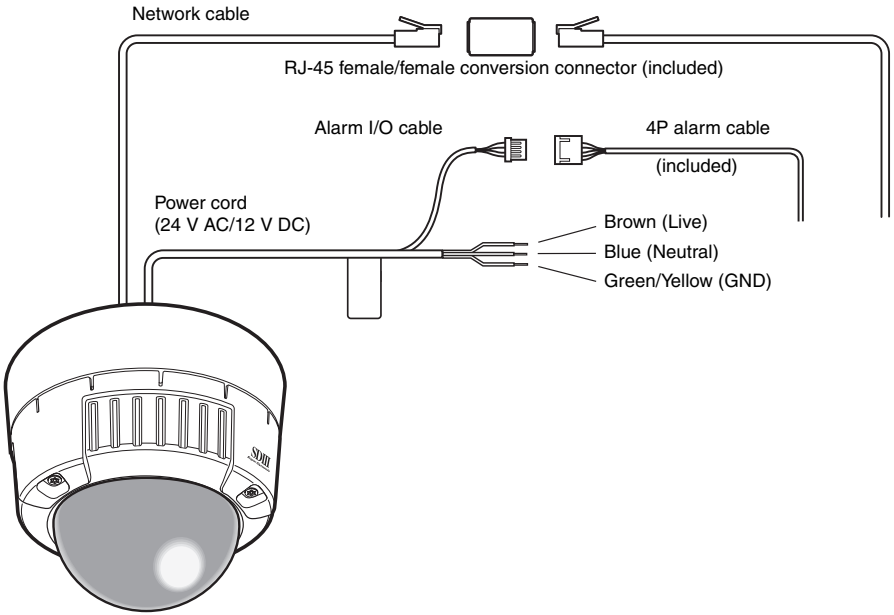

Enlarged view of A




***Note***

- When installing the enclosure, the camera focus may shift slightly out of position. So, either hold the ABF button down for at least two seconds before installing the dome cover, or make the final adjustment on the PC after installing the dome cover. (→ page 28)
- When installing an SD memory card, insert the card before installing the enclosure. (→ page 32)

# Connecting the Cables




**Power cable**

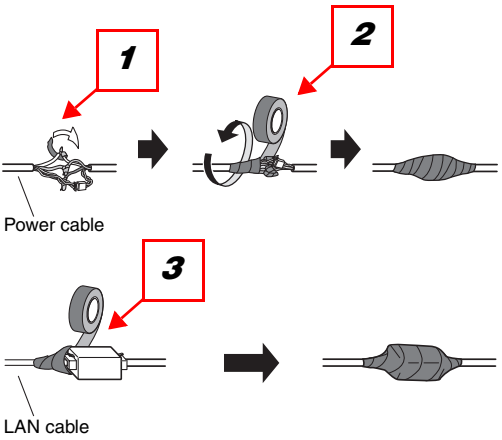
| | 24 V AC | 12 V DC |
|---|---|---|
| **Brown (Live)** | Live | Plus |
| **Blue (Neutral)** | Neutral | Minus |
| **Green/yellow (GND)** | Connect to ground. | |

**Waterproofing Cable Joints**

Waterproof the cable to install the camera using exposed wiring, or when installing the camera under eaves. Though the camera body is waterproof, the cable ends are not waterproofed.

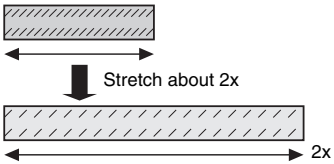
Follow the procedure below to waterproof the power cables (including Alarm I/O cable) and LAN cable connections using butyl rubber tape (provided). If vinyl tape other than butyl rubber tape (provided) is used, water may seep in between the gaps and cause a malfunction.

1. Connect the power cable and the Alarm I/O cable.
2. Wind butyl rubber tape around the connections.
3. Wrap butyl rubber tape around the joint of the LAN cable connector.




***Note***

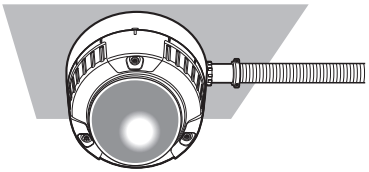
- How to wrap butyl rubber tape (provided).
  Stretch the tape to about twice its length (see figure on the right), and wrap it around the cable. Sufficient waterproofing performance cannot be obtained unless the tape is sufficiently stretched.



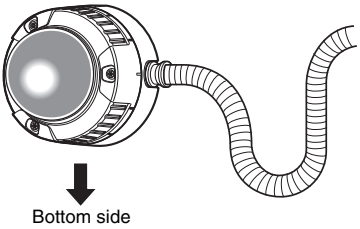

- Waterproof the cable when installing the camera outdoors. The camera body is waterproof (JIS IP66 or equivalent) only when installation specified in this document and appropriate waterproofing is conducted correctly. The mounting bracket is not waterproofed.

**Important**

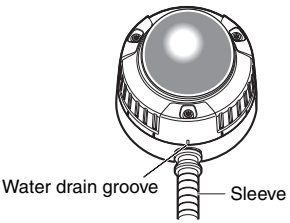
- When wiring the cable by exposed wiring, be sure to use a sleeve to prevent the cable from being exposed to the direct sunlight.



- Install the camera so that the cable is at the bottom side of the camera. Draw out the cable to the side of the mounting fixture, set it facing down, and then wire it facing up.



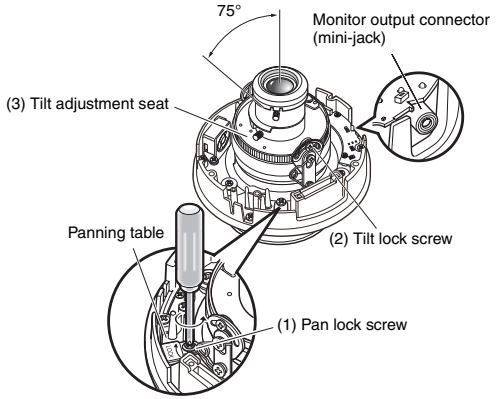

- When installing the camera on a wall, install it so that the water drain groove is facing down.
  Also, do not block the water drain groove. Blocking the water drain groove will prevent the dehumidifying element at the rear of the camera from functioning. Water that builds up inside the mounting fixture also blocks the dehumidifying element and this will cause malfunction.



# Adjusting the Camera

**1** Adjust the camera angle while monitoring the image on the adjustment monitor.
Connect the adjustment monitor (small LCD monitor, etc.) to the monitor output terminal, and adjust the camera angle.
Determine and set the camera angle while repeating the fine-adjustments in steps (1), (2) and (3) below.

(1) Loosen the pan lock screw, and rotate the camera horizontally to adjust pan.
(2) Loosen the 2 tilt lock screws, and rotate the camera vertically to adjust tilt.
(3) Turn the tilt adjustment seat to adjust the screen tilt.
(4) When the camera angle is determined, tighten the pan lock screw and the tilt lock screws.




***Note***

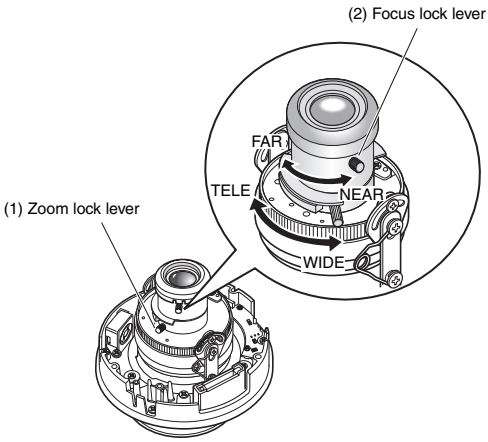
- Also adjust the focus in step 2 during pan and tilt adjustment.

**Important**

- Be sure to tighten the panning lock screw (recommended torque: 0.59N·m {6 kgf·cm}).

**2** Adjust the focus.
Adjust the focus at the same time as pan and tilt adjustment.
Repeat steps (1) and (2) to adjust the focus.

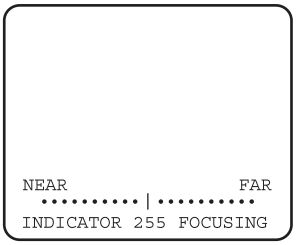
(1) Loosen the zoom lock lever, move the lens to the appropriate view angle between TELE and WIDE, and tighten the lever.
(2) Loose the focus lock lever, rough-adjust the focus, and tighten the lever.




***Note***

- When either the zoom or focus is changed, the other also is changed.
  Repeat steps (1) and (2) to adjust. Fine-adjust the focus by ABF as follows.

**3** Press the ABF button.
The ABF LED (→ page 13) lights, the focus position is displayed at the bottom of the adjustment monitor screen, and the back focus is automatically adjusted.
When connected to a network, the camera can be operated and checked from a PC.




***Note***

- Pressing and quickly releasing the ABF button immediately starts ABF adjustment.
- If you hold down the ABF button for at least 2 seconds, ABF adjustment is started after about 3 minutes. Use this for final adjustment after attaching the dome.

***Note***

- **How to Change the View Angle**
  To change the view angle, turn the zoom lock lever and focus lock lever to adjust the focus.
- **How to Focus (capturing subjects with a self-closing lens)**
  When the focus has been adjusted with the iris closed (to capture a bright subject), the subject may be out-of-focus when the iris is opened. So, try to focus the lens in as dark conditions as possible.
- **How to Focus (when capturing subjects in the near infra-red range)**
  On the [Image/ABF] tab under [Camera setup] on the setup menu, click the [SETUP>>] button for the back focus setting. The back focus setup dialog box is displayed. Focus can be adjusted at both the near infra-red area and the visible light area when adjusting method is set to "AUTO" or "PRESET". (→ Setup Manual)
- **How to Use the Varifocal Lens and Zoom Lens**
  Before adjustment, reset the back focus position, and return the CS mount to its default position. (→ Setup Manual)

**Alarm In/Out Ratings**

| Terminal Name | Rating | Remarks |
|---|---|---|
| ALARM IN | 5 V DC pull-up built in | |
| ON | Short-circuit with GND (necessary drive current is 1 mA or greater) | |
| OFF | Open or 4 V DC to 5 V | |
| ALARM OUT | Open collector output (internal pull-up/maximum drive current 50 mA), latch/pulse | Latch/pulse setting selectable |
| OPEN | 4 V DC to 5 V | |
| CLOSE | 1 V DC maximum | |
| AUX OUT | Open collector output (internal pull-up/maximum drive current 50 mA) | |
| OPEN | Open or 4 V DC to 5 V | |
| CLOSE | 1 V DC maximum | |
| DAY/NIGHT IN | DC 5 V pull-up built in | Terminal shared with ALARM OUT. Can be selected in settings (Default setting: ALARM OUT) |
| ON (black and white) | Short-circuit with GND (necessary drive current is 1 mA or greater) | |
| OFF (color) | Open or 4VDC to 5V | |

***Note***

- Check the Operating Instructions (provided) to see if the ratings of sensors and other external devices are compatible with the camera ratings.

**Pin Arrangement of 4-pin Alarm Cable (accessory)**

| | | |
|---|---|---|
| 1 | Black | GND |
| 2 | Gray | AUX OUT |
| 3 | Red | ALARM OUT or DAY/NIGHT IN |
| 4 | Green | ALARM IN |

# Handling SD Memory Cards

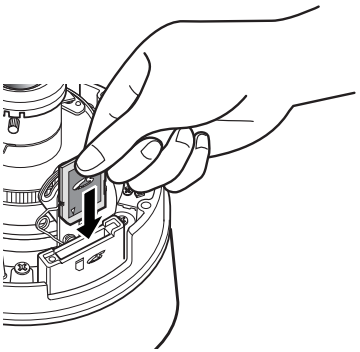
## Insertion and Removal of SD Memory Cards

To insert or remove an SD memory card, the dome cover must be removed.
(→ page 21)

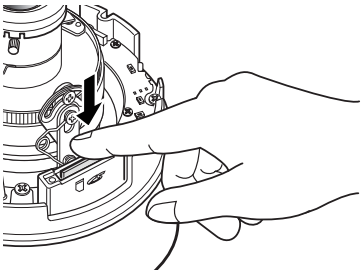
**Important**

- Before inserting an SD memory card, turn the camera off.

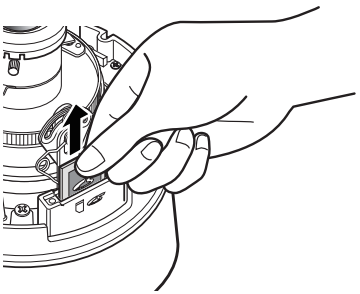
***1*** Insert the SD memory card into the SD memory card slot.



***2*** Press the SD memory card in as far as possible until it is fixed in place. Your will hear it click into place.



***3*** To remove an SD memory card, press it in as far as possible again. You will hear it click and it will rise up. Remove the SD memory card.



# Heater Unit

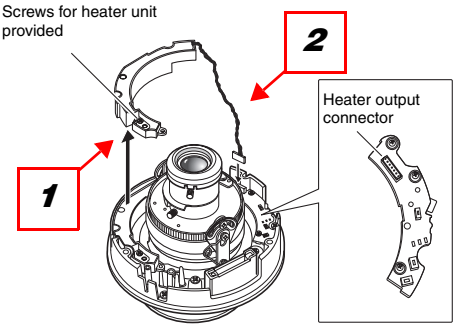
When the heater unit (sold separately) is used, the camera can be used outdoors in low-temperature environments down to -30ºC (-22ºF). The heater automatically turns on when the temperature inside the camera falls below about 10ºC (50ºF), and turns off when the temperature inside rises. The condensation fan alleviates the problem of clouding (condensation) caused by temperature change in the camera dome caused. Note, however, that significant condensation caused by sudden temperature change cannot be completely alleviated.

**Important**

- The camera image may be influenced when the heater unit is turned on and off.
- Before installing and removing the heater unit, be sure to turn off the camera. The heater unit is hot while it is turned on. Disconnect the connector from the camera, and wait for the heater to cool down before removing it.
- When the heater unit is installed and use is started in environments of -10ºC (14ºF) or below, normal images may not be obtained immediately after the camera is started up. In this case, wait for the camera to warm up (about 2 hours or more) before turning the power on again.
- Use 24 V AC or POE to deliver power to a heater unit.

## How to Install the Heater Unit

1. Remove the enclosure from the camera, and install the heater unit at the specified location using the screws provided.
2. Connect the heater unit cable to the connector on the camera body.



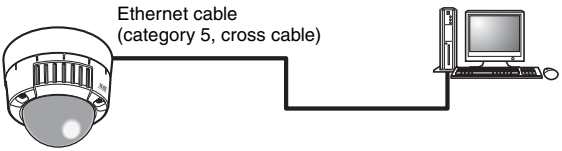

**Important**

- After installing the heater unit, pull the cable through so that it is not pinched while installing the enclosure. While pulling the cable through, make sure that it does not become entangled with the movable parts inside the camera.

# Connection Examples

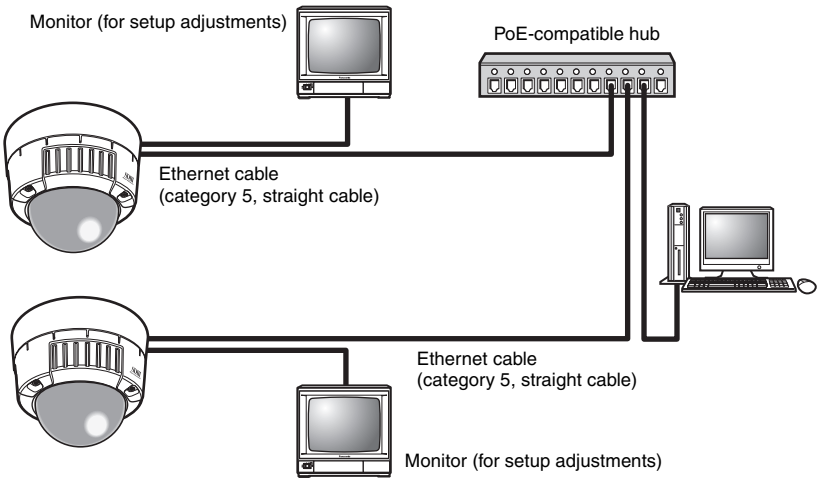
**Direct connection to a PC**

When connecting the camera directly to a PC, use the Ethernet cable (Category 5, cross cable).




**Network connection via a PoE-compatible hub**

When connecting the camera to a network via a PoE-compatible hub, use the Ethernet cable (Category 5, straight cable).




**Important**

- The monitor is intended solely for checking the view angle during installation or servicing. It is not intended for recording or monitoring images.
- Text displayed on the monitor screen may be clipped depending on the monitor you are using.
- The switching hub or router used must be 10BASE-T/100BASE-TX-compatible.
- A separate power supply is required for each network camera. Separate power supplies are not required when a PoE-compatible hub is used.

# Network Setup

## Installing the Software

Be sure to read the "Readme" file in the CD-ROM (provided) before installing the software.

**Software in CD-ROM**

- Panasonic IP setup software
  This software is used to make network settings on the camera. For details, refer to the following.
- Network Camera View3
  To display images on this camera, the viewer software "Network Camera View3" must be installed. This software can be installed directly from the camera or by double clicking "nwcv3setup.exe" on the CD-ROM provided, and then following the on-screen instructions.

## Using the Panasonic IP Setup Software to Set Up the Camera

Use the Panasonic IP Setup Software provided (from here on, IP setup software) to make network settings on the camera.
When two or more cameras are used, network settings must be made on each camera.
When the network settings cannot be made using the IP setup software, set the cameras and PC individually in the "Network setup" page in the setup menu. (→ Setup Manual)

**Important**

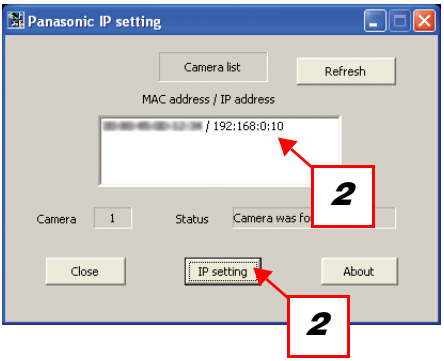
- When Windows® XP SP2 is used, an important alert screen regarding security may be displayed when the IP setup software is started up.
  If this happens, click the [Unblock (U)] button.
- To enhance the security, the IP setup software no longer displays the MAC address and IP address of the target camera when about 20 minutes elapses since the camera was turned on. Note, however, that when the network settings (IP address, default gateway, subnet mask, HTTP port number, DHCP setting, user ID, and password) are still at their defaults when the camera was bought, the MAC address and IP address of the target camera are displayed even after about 20 minutes elapses since the camera was turned on.
- The IP setup software cannot be used on different subnets via a router.

**1** Launch the IP setup software.

**2** Click the MAC address/IP address of the camera to set up, and click the [IP setting] button.

***Note***

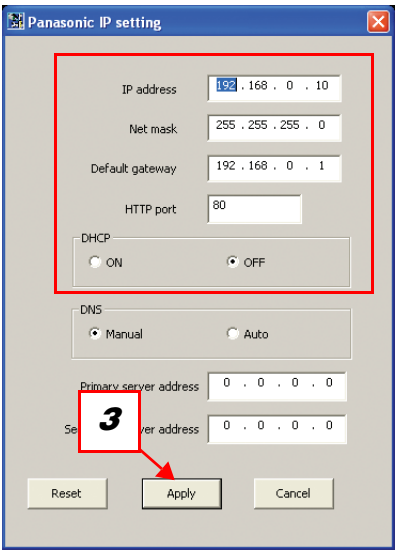
- When a DHCP server is in use, you can check the IP address assigned to the camera by clicking the [Refresh] button in the IP setup software.




**3** Enter each of the network items, and click the [Apply] button.

***Note***

- When a DHCP server is in use, "DNS" in the IP setup software can be set to "Auto".



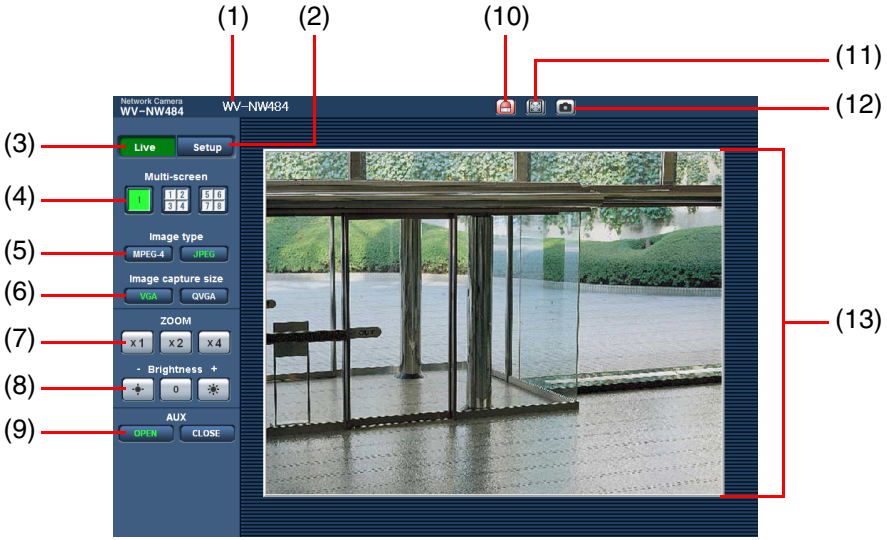

**Important**

- It takes about 30 seconds for settings on the camera to complete after clicking the [Apply] button. The settings will be invalid if the camera is turned off or the Ethernet cable is disconnected before setting is complete. If this happens, make the settings again.
- When a firewall (including software) has been installed, allow access of all UDP ports.

# Monitor Images on a PC

The following describes how to monitor images from the camera on a PC.

The following shows the functions of the buttons on the "Live" page.




(1/3)

| No. | Item | | Description |
|---|---|---|---|
| (1) | [Camera title] | | The camera title entered for "Camera title" on the [Basic] tab in the Setup menu is displayed. (→ Setup Manual) |
| (2) | [Setup] button*1 | | Click this button to display the setup menu. |
| (3) | [Live] button | | Click this button to display the "Live" page. |
| (4) | [Multi-screen] buttons | | Images from multiple cameras can be displayed on a multi-screen. To display images from multiple cameras, set the cameras to display in "Multi-screen setup" in the setup menu. (→ Setup Manual) |
| (5) | [Image type] | | Click these buttons to display either MPEG-4 or JPEG images in the main area. |
| | | [MPEG-4] button | Click this button to display MPEG-4 images. When "OFF" is selected for "MPEG-4 transmission" in the setup menu, the [MPEG-4] button will not be displayed. (→ Setup Manual) |
| | | [JPEG] button | Click this button to display JPEG images. |

(2/3)

| No. | Item | | Description |
|---|---|---|---|
| (6) | [Image capture size] | | Click these buttons to set the resolution of the main area to VGA or QVGA.<br>These buttons will be displayed only when "JPEG" is selected as the image type. |
| | | [VGA] button | Click this button to display images in the main area at VGA size. |
| | | [QVGA] button | Click this button to display images in the main area at QVGA size. |
| (7) | [ZOOM] | | Click the desire button to enlarge the displayed image. Only the image in the main area is enlarged. |
| | | [X1] button | Return to the original display size (1x size). |
| | | [X2] button | Display image with 2x size. |
| | | [X4] button | Display image with 4x size. |
| (8) | [Brightness]*2 | | Click these buttons to adjust the brightness of the image. |
| | | [-] button | The displayed image will be darker. |
| | | [0] button | The adjusted brightness will return to the default brightness. |
| | | [+] button | The displayed image will be brighter. |
| (9) | AUX*2 | | Click these buttons to switch the state of the AUX connector. |
| | | [OPEN] button | Sets the AUX connector to open. |
| | | [CLOSE] button | Sets the AUX connector to closed. |
| (10) | [Alarm occurrence indication] button*2 | | This button will be displayed and will blink when an alarm has occurred. When this button is clicked, the alarm output terminal will be reset and this button will disappear. (→ Setup Manual) |
| (11) | [Full screen] button | | Click this button to display images on a full screen. To return to the "Live" page, press the [Esc] key, the [F5] key, or the combination of the [Alt] key and [F4] key on the PC's keyboard. |

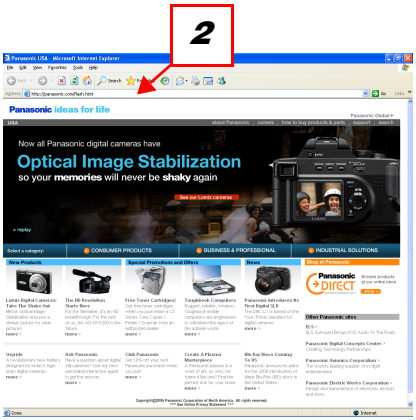
| No. | Item | Description |
|---|---|---|
| (12) | [One shot] button | Click this button to take a picture (a still picture) and display it in a newly opened window.<br>To save the image to PC, right-click on the displayed image and select "Save". |
| (13) | Main area | Images from the camera are displayed in this area.<br>The current date and time are displayed at the selected position using the date and time format set in the setup menu. (→ Setup Manual) |

*1 Only operable by users whose access level is "1. Administrator"

*2 Only operable by users whose access level is "1. Administrator" or "2. Camera control" when "ON" is selected for "User authentication" or "Host authentication." For further information about the access level, refer to Setup Manual.

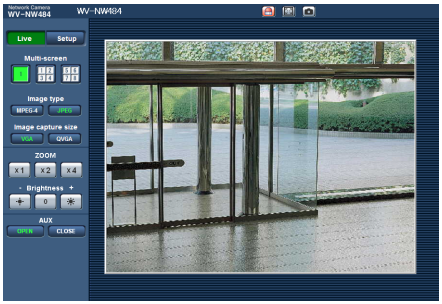
# Monitor images from a single camera

- **Web browser screen**


2
Panasonic ideas for life
Now all Panasonic digital cameras have
Optical Image Stabilization
so your memories will never be shaky again

1. Launch the web browser on the PC.
2. Enter the IP address designated using the Panasonic IP setup software (→ page 35) in the address box of the browser.
   (Example: http://192.168.0.10)
3. Press the [Enter] key.
   When "ON" is selected for "User Authentication", the window for entering the user name and password is displayed.

- **"Live" page**




4. Display images from the camera.

***Note***

- When the HTTP port number has been changed from "80", enter "http://IP address of the camera:port number".
- When the DDNS function has been set to "ON", enter "http://host name registered to DDNS server.nmdns.net/".
- When this camera is to be used in a local area network, configure the web browser to bypass the proxy server for the local address.

**Important**

- The default user name is "admin" and default password is "12345".
  To enhance the security, be sure to change the password for the user name "admin".
  (→ Setup Manual)
- When displaying multiple MPEG-4 images on a PC, images sometimes cannot be displayed depending on the performance of the PC.
  For details on the required PC environment, refer to page 6.

## Monitor images from multiple cameras

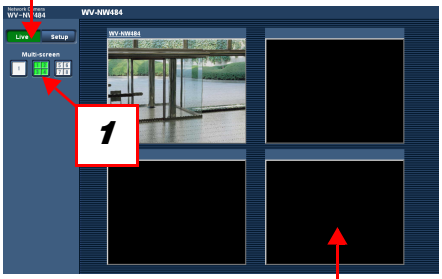
Images from multiple cameras can be displayed on a multi-screen. 4 cameras can be registered as a group, and camera images for up to 8 cameras (2 groups) can be displayed simultaneously in a multi-screen. For further information about registering cameras, refer to the Setup Manual.

**Important**

- Only JPEG images can be displayed on a multi-screen.
- When the power is turned off or the LAN cable is disconnected when displaying images, displaying images on a multi-screen from the "Live" page will become unavailable.

- **Multi-screen window**

To display images on a single screen, click the [Live] button.




Click a camera title. Live images from the camera corresponding to the clicked camera title will be displayed on the "Live" page of the newly opened window.

***1*** Click the [Multi-screen] button.
Images from the camera are displayed in four screens.

# Action at an alarm occurrence

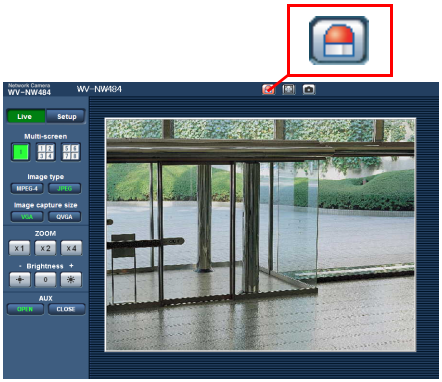
When a "Terminal alarm", "VMD alarm", "Scene change detection alarm" or "Command alarm" occurs, alarm action is performed according to the setup for that alarm. For further information about how to set alarms, refer to the Setup Manual.

## Alarm type

| | | |
|---|---|---|
| Terminal alarm | : | Alarm action will be performed when the alarm device connected to the cable is activated. |
| VMD alarm | : | Alarm action will be performed when a change (i.e. motion) is detected in the image in the set VMD area.<br>* VMD stands for "Video Motion Detector". |
| Scene change detection alarm | : | Alarm action will be performed when this camera has been interfered with, for example, when it has been covered with a cloth or when its direction has been changed. |
| Command alarm | : | Alarm action will be performed when a Panasonic alarm notice is received from a connected device via the network. |

## Action at an alarm occurrence

- **Display of the [Alarm occurrence indication] button on the "Live" page (→ Setup Manual)**




The [Alarm occurrence indication] button will be displayed and will blink on the "Live" page when an alarm occurs.

**Important**

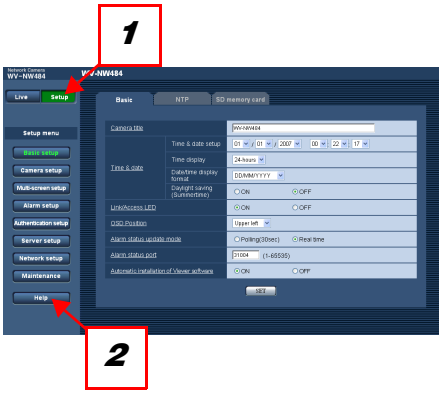
- When "Polling(30 sec)" is selected for "Alarm status update mode", the alarm occurrence indication button will be refreshed in 30-second intervals. For this reason, it may take a maximum of 30 seconds until the alarm occurrence indication button is displayed on the "Live" page when an alarm occurs. (→ Setup Manual)

# Viewing Help

If you want to know anything about operation or setup methods on screen, display the "Help" screen.

## Displaying the Help screen

- **Setup screen**




**1** Click the [Setup] button.
The setup screen is displayed.

**2** Click the [Help] button.
The "Help" screen is displayed.

- **Help screen**

Click the desired item to display a detailed explanation for the corresponding operation.

# Troubleshooting

Before requesting service, check the following items.
Also, check the description in the Operating Instructions, Setup Manual.
Contact your dealer if a problem cannot be solved even after checking and trying the solution or if a problem is not described below.

| Symptoms | Check item/remedy | page |
|---|---|---|
| **Camera does not turn on.** ▶ | **AC/DC power supply** | |
| | • Is the power firmly connected to the power outlet?<br>Make sure that it is connected. | — |
| | **PoE power supply** | |
| | • Is the network cable connected to a PoE-compatible power supply unit by an Ethernet (Category 5) cable?<br>Make sure that it is connected. | 34 |
| | • Some power supply units that can connect multiple PoE terminal devices are not supplied with power when the total power supply limitation is exceeded. | — |
| | • Read the Operating Instructions of the PoE power supply unit. | — |

# Specifications

• General

| | |
|---|---|
| Power supply | 24 V AC, 60 Hz, 12 V DC, PoE (IEEE802.3af-compliant) |
| Power consumption | 24 V AC: approx. 8.2 W,<br>12 V DC: approx. 850 mA,<br>PoE: approx. 9.2 W (Class 0) |
| | (When heater unit is used)<br>24 V AC: approx. 16 W,<br>12 V DC: approx. 920 mA,<br>PoE: approx. 12 W (Class 0) |
| Ambient operating temperature | -10ºC to +50ºC {14ºF to 122ºF} |
| | (When heater unit is used)<br>-30ºC to +50ºC {-22ºF to 122ºF} (AC 24 V or PoE) |
| Ambient operating humidity | Less than 90% (non-condensation) |
| Water Resistance | Camera unit: IEC60529 (IP66, Against ingress of water with harmful effects powerful jetting)<br>* Only on condition that installation specified in this document and appropriate waterproofing is conducted correctly |
| Monitor output | VBS: 1.0 V [P-P]/75 Ω (NTSC), composite signal, RCA jack |
| External I/O terminals | ALARM IN, ALRM OUT or DAY/NIGHT IN, AUX OUT |
| Dimensions | 159 mm (D) x 153 mm (H) {6-17/64"(D) x 6-1/32"(H)} |
| Weight | Approx. 1.9 kg (including bracket) {4.2 lbs} |
| Finish | Body: aluminum die cast, light silver<br>Dome: smoke polycarbonate resin |

• Camera

| | |
|---|---|
| Pick-up device | 1/3-inch interline transfer CCD |
| Effective Pixels | 768 (H) x 494 (V) |
| Scanning Area | 4.8 mm (H) x 3.6 mm (V) |
| Scanning | 2:1 interlace<br>* Mounted with motion adaptive interlace/progressive conversion function for network output |
| Minimum Illumination | 1.5 lux {fc} (color), 0.16 lux {fc} (black and white) |
| (SENSE UP: OFF, | (When optional clear dome is used.) |
| AGC: HIGH, F1.4, WIDE) | 0.6 lux {fc} (color), 0.08 lux {fc} (black and white) |
| Dynamic range | 52 dB typ. (Super Dynamic Ⅲ ON, shutter speed OFF) |
| Gain | ON (LOW), ON (MID), ON (HIGH), OFF |

| | | |
|---|---|---|
| Shutter speed | | OFF (1/60), AUTO, 1/100 |
| Electronic sensitivity enhancement | | Max. 32X |
| White balance | | ATW1/ATW2/AWC |
| Digital noise reduction | | LOW/HIGH |
| Electronic zoom | | Max. 3X |
| Camera title | | Max. 16 character display (alphanumeric characters, marks) ON/OFF |
| VMD alarm | | 4 areas settable |
| Scene change detection alarm | | ON (LOW), ON (MID), ON (HIGH), OFF |
| Privacy zone | | ON/OFF (max. 8 zone settings) |

• Lens

| | | |
|---|---|---|
| Type | | 2x variable focal lens |
| Focal length | | f=3.8 mm - 8.0 mm |
| F number | | F1.4 - 1.8, close |
| Focus range | | ∞ - 1.2 m |
| Angle of view | | Horizontal:73.6°(WIDE) - 35.6°(TELE)<br>Vertical:53.4°(WIDE) - 26.6°(TELE) |
| Adjusting angle | | Panning range: ±175°<br>Tilting range: ±75°<br>Azimuth range: ±160° |

• Network

| | | |
|---|---|---|
| Network | | 10BASE-T/100BASE-TX, RJ45 connector |
| Image resolution | | VGA (640 x 480)/QVGA (320 x 240) |
| Image compression system | MPEG-4 | Image selection: motion priority/standard/quality priority<br>Transmission type: Unicast/Multicast |
| | JPEG | Quality selection: 0 highest quality/1 high quality/2/3/4/5 standard/6/7/8/9 low quality (in ten stages, 0 to 9)<br>Transmission type: PULL/PUSH |
| Refresh interval | | 0.1 fps to 30 fps (JPEG frame rate limited at JPEG/MPEG-4 simultaneous operation) |
| Total bit rate | | Unlimited/64 kbps/128 kbps/256 kbps/<br>512 kbps/1024 kbps/2048 kbps/4096 kbps |
| Supported protocol | | TCP/IP, UDP/IP, HTTP, RTP, FTP, SMTP, DHCP, DNS, DDNS, NTP, SNMP |

| | |
|---|---|
| Supported OS | Windows® 2000 Professional SP4,<br>Windows® XP Home Edition SP2,<br>Windows® XP Professional SP2 |
| Supported browser | Internet Explorer® 6.0 SP2,<br>Internet Explorer® 7.0<br>* When supported OS is Windows® 2000 Professional SP4, Microsoft Internet Explorer® 6.0 SP1 |
| Max. number of connected cameras | 8 (depending on conditions) |
| FTP client | Alarm image transmission, FTP periodic transmission |
| Multi-screen | Simultaneous display of images from 8 cameras<br>(4 cameras x 2 groups) |
| Operation confirmed SD memory cards (sold separately) | Panasonic<br>Size: 64 MB, 128 MB, 256 MB, 512 MB, 1 GB, 2 GB |

- Optional accessories

| | | |
|---|---|---|
| Heater unit | WV-CW4H | Weight, approx. 40 g |
| Clear dome cover | WV-CW4C | Weight, approx. 110 g |
| Ceiling Mount Bracket | WV-Q169 | Weight, approx. 705 g |

## Accessories

CD-ROM* . . . . . .1 pc.
Operating Instructions (this book) . . . . .1 pc.
Warranty Certificate. . . . . 1
Label (MAC address). . . . . .1 pc.

Use the following items for installation work.
4-pin Alarm Cable . . . . . .1 pc.
RJ-45 female-female conversion connector . . . . . .1 pc.
Mounting Bracket . . . . . .1 pc.
Driver Bit . . . . . .1 pc.
Waterproof tape (butyl rubber tape) . . .1 pc.

* The CD-ROM contains the Panasonic IP Setup Software, viewer software "Network Camera View3", and the Operating Manual/Setup Manual (PDF).

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